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(54) FUEL REFORMER

(57) Abstract:

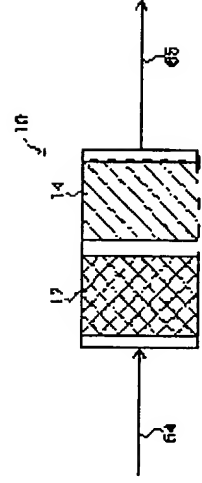
PROBLEM TO BE SOLVED: To provide a technique to improve the reforming efficiency of fuel in a fuel reformer using a partial oxidation reaction and a steam reforming reaction.

SOLUTION: A reformer 10 is provided with a high density part 12 and a low density part 14. The specific surface area of a catalyst in the high density part 12 is larger compared to that in the low density part 14. The catalyst for accelerating the steam reforming reaction and the partial oxidation reaction is provided in both parts. Hydrocarbon based fuel, steam and air are supplied to the reformer 10 through a raw material and fuel supply passage. The partial oxidation reaction

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proceeds more actively in the high density part 12 because of the larger specific surface area of the catalyst. In the low density parts 14, the lowering of the activity for the steam reforming reaction in the whole reformer 10, which is caused by the excessive increase of the activity for the steam reforming reaction to lower the temperature, is prevented by the small specific surface area of the catalyst.

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